

**PATENT COOPERATION TREATY**

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
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**PCT**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing 15 June 2005 (15-06-2005)  
(date/month/year)

Applicant's or agent's file reference  
**43572-0002**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No  
PCT/CA2005/000175

International filing date (date/month/year)  
11 February 2005 (11-02-2005)

Priority date (date/month/year)  
11 February 2004 (11-02-2004)

International Patent Classification (IPC) or both national classification and IPC: H05C-3/00; AB61B-5/117, G01P-13/00; G01V-15/00; G06F-17/60; G07C-1/10; G08B-21/00; G08C-17/02; H01Q-7/00; H04L-29/06; G01S-13/78

Applicant

CSTAR TECHNOLOGIES INC. ET AL.

1. This opinion contains indications relating to the following items :

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input checked="" type="checkbox"/> | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application   |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application  |

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/  
Commissioner of Patents  
Canadian Patent Office  
Box PCT, Ottawa/Gatineau K1A 0C9

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INTERNATIONAL SEARCHING AUTHORITY**

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**Box No. I      Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language which it was filed, unless otherwise indicated under this item.

- ☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments :

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Box No. IV

Lack of unity of invention

- 1 ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has :
- ☒ paid additional fees
- ☐ paid additional fees under protest
- ☐ not paid additional fees
- 2 ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
- 3 This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
- ☒ not complied with for the following reasons :
- The claims on file define two distinct sets of subject matter :
- Group A (Claims 1-25 and 31-37)** concerns a means of containing and tracking an infectious disease in a facility, comprising the steps of assigning a device containing a unique ID and transmitter for each individual having access to the facility, where the device transmits the assigned unique ID; detecting the unique ID transmissions at one or more locations in the facility, based on the movements of the individuals; and establishing and storing a record for each of the individuals, where each record includes temporal data indicating a time and date, for tracking the unique ID for each individual bearing an ID device.
- Group B (Claims 26-30)** concerns an ID apparatus used in tracking the movement of an individual in a facility. The apparatus is comprised of passive and active antennas, and transmitter and receiver circuits which are electronically coupled to the passive and active antennas, and whereby all of the components are installed on a carrier surface. The passive and active antennas each have one or more windings near the edge of the carrier surface, and the active antenna windings are within the periphery of the passive antenna windings.
- 4 Consequently, this opinion has been established in respect of the following parts of the international application :
- ☒ all parts
- ☐ the parts relating to claims Nos. \_\_\_\_\_.

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**Box No. V reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	8-13, 22-25, 26-30 and 33-35	YES
	Claims	1-7, 14-21, 31-32 and 36-37	NO
Inventive step (IS)	Claims	25, 35	YES
	Claims	1-24, 26-30, 31-34, 36-37	NO
Industrial applicability (IA)	Claims	1-37	YES
	Claims		NO

**2. Citations and explanations :**

D1: US 6456239  
D2: US 6483427  
D3: CA 2481353  
D4: CA 1295717  
D5: US 6052062

D1 discloses a means for determining locations of ID tags. Tag reference data may be stored, such as in the form of a lookup table, as a trained neural network, and so on, and then used to determine the location of the tags. Readings used to determine tag location and/or preliminary tag locations may be filtered to produce reliable tag location indications, and to generate confidence levels to indicate how well an asset location system can distinguish between different tag locations. Packages of user configurable parameters can be provided and used for the filtering of the preliminary tag locations. The locations of objects bearing tags are identified within clearly defined zones, such as rooms and hallways in hospital settings (as described in column 10, lines 10-27), both by Boolean rules and by triangulation using antennas in the zones. Both medical equipment (as described in column 24, lines 54-60) and people can be tracked using affixed tags, including people at medical risk, such as babies, for which positional tracking is critical, and moving these dedicated tags outside of their restricted zones will trigger alarms (as described in column 37, lines 1-22). In addition, temporal data is tracked as well (as described in column 16, lines 8-18), as the amount of time in which a given tag is present in a given zone is one of the factors which determines the manner in which the system is alerted, depending on the security code of the tag and the current zone where the tag is detected.

D2 discloses a system for continuously track mobile tags carried by articles and personnel as they move through buildings. Cell controllers with multiple antenna modules generate a carrier signal which is received by the tags. Tags "wake up" periodically, and "chirp" a radio-coded unique identity. Tags shift the frequency of the carrier signal, modulate an identification code onto it, and transmit the resulting tag signal at randomized intervals. The antennas receive and process the response, and determine the presence of the tags by proximity and triangulation. Distance of a tag from an antenna is calculated by measuring the round trip signal time. The cell controllers send data from the antenna to a host computer. The host computer collects the data and resolves them into positional estimates. Data are archived in a data warehouse, such as an SQL Server. Active RFID systems require battery-powered tags, permitting a longer detection range up to 100 meters, faster communication in several frequency bands, and also permitting identification of multiple tags within the range of an interrogator by the use of "handshaking", whereby each tag transmits its signal in turn (as described in column 2, lines 7-17).

D3 discloses a means of collecting, at immunization mobile stations (IMS's) patient information such as biographical data, previous vaccination data, medical history, medications in use, occupation, administration of recent vaccination, and disease symptoms. IMSs synchronize the patient information with information stored in a database at a data center, that is accessible to different groups of personnel based on different privileges and security measures. Patients can access electronic patient records created by the IMSs, and stored at the IMSs and/or a local server and eventually at the data center, via telephone or computer (ie.. via web browser). IMSs can capture and store images of vaccination and disease symptom sites on patients. The database allows for vaccination and disease tracking and disease control. IMSs have vaccination recommendation engine, electronic patient consent forms, and are programmable to track adverse events and create follow-up reports after a vaccine is administered.

Continued in the Supplemental Box ...

**WRITTEN OPINION OF THE  
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International application No.  
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**Box No. VII    Certain defects in the international application**

The following defects in the form or contents of the international application have been noted :

**Fitness for Reproduction**

PCT Rule 11.2 requires that all elements of the International Application shall be presented in a manner so as to permit direct reproduction by photography, electrostatic processes, photo offset and microfilming, in any number of copies.

Figures 9 and 20, as submitted, are not reproducible by scanning processes.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
FIELD(appl\_no)

**Box No. VIII** Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

**PCT Article 6**

Claim 26 does not meet the requirements of PCT Article 6, as this claim is indefinite. On line 2, the term "identification tag" is introduced, but this term was previously defined as "an identification apparatus".

In addition, in lines 13-14, the receiver and transmitter circuits are defined as "*being electronically coupled to said passive and active antennas*". As written, it is not clear as to which circuit is connected to which antenna. Perhaps it would be clearer to state the following instead ..

*"being electronically coupled to said passive and active antennas, respectively."*

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**Supplemental Box - Page 1 of 2**

In case the space in any of the preceding boxes is not sufficient.

Continuation of : **Box No. 5**

D4 discloses a stolen object location system, comprising a base station, a location network, and an object unit which is associated with the object to be located. The location system is capable of operating in a plurality of different location modes, ranging from simple triangulation to LORAN. The base station, upon being notified that the object has been stolen, will transmit a locate request message to the object unit specifying the location mode to be used, and the transmission frequency of the object unit's transmitter. An electronic control in the object unit will control the operation of the object unit's receiver and transmitter, in accordance with the location mode and transmission frequency specified in the location request message. The electronic control will also initiate the transmission of an alarm message if the object unit loses communication with the base station, and is capable of transmitting a tattle-tale message, effectively relaying the alarm message of another object unit if the base station does not respond to the other object unit's alarm message. Each object unit contains a receiver for receiving location request messages, a variable frequency transmitter for transmitting messages, and an electronic control for controlling the operation of the receiver and the variable frequency transmitter, in response to information contained in the location request messages.

D5 discloses cards, communication devices, and methods of forming the same and encoding visibly perceptible information on communication devices. The remote intelligent communication device includes a card-thin housing, which comprises upper and lower surfaces, and at least one side extending between these surfaces, the side having visibly perceptible information thereon. The remote card device also includes communication circuitry within the housing, configured to communicate and receive electronic signals. This communication circuitry includes separate transmitter and receiver circuits, which are electronically coupled to respective antennas. The antennas are formed on the surface of the card, using conductive ink.

The following section separately discusses the two identified distinct groups of subject matter claimed by the applicant.

**GROUP 1 : Claims 1-25 and 31-37**

**NOVELTY :**

Claims 1-7, 14-21, 31-32 and 36-37 do not meet the requirements of PCT Article 33(2).

Independent claims 1, 14 and 20 define a means of containing and tracking of an infectious disease in a facility, comprising assigning a device containing a unique ID and transmitter, for each individual having access to the facility, where the device transmits the assigned unique ID, detecting the unique ID transmissions at one or more locations in the facility, based on movements of the individuals, and establishing and storing a record for each of the individuals, each record including temporal data indicating time and date for detection of the unique ID for each individual.

Claims 2, 3, 15 and 36 define records of positional data, including the location of a scrutineer having detected the ID signal of a given tag, and associating tags with equipment in the facility. Claims 4, 14, 16, 20 and 31 define generating temporal data and auditing related to the tag detected positions. Claims 5-7, 17-19 and 31 define wireless a RFID technology and communications protocol used in the transponder and scrutinizer, and to communicate the tracking results with a computer. Claims 20 and 31 also add a means of sending polling requests to the tags, and generating an audit record in response to the polling requests, and claims 21 and 32 define transmission of polling requests on a predetermined time basis. Claim 37 defines initiating an alarm condition if a tag associated with a person or apparatus is non-responsive to polling requests.

The closest document in the art, D1, contains all of the elements of these claims, as follows. D1 discloses a means of determining the locations of each of a plurality of RFID tags, where the tags are each assigned to people or equipment within a hospital facility, and each of which have unique electronic identifiers which are used to communicate with a central computer. The movement of the tags, and thus the people or equipment bearing them, are tracked throughout the facility, using antennas (scrutinizers) placed throughout the facility, including at entrances to rooms and corridors. The facility is itself divided into zones, which are each assigned security levels, as are the assigned tags. When a tag enters a given zone, the security levels are compared, and, depending on the predetermined conditions placed on the tag and the zone, an alarm may be activated immediately, or after a given time period if the tag remains within the restricted zone. Thus records of temporal data are kept, detailing the position of the tags. The alarm status is the audit record of the result of polling a tag which has entered a restricted zone.

Continued in the Supplemental Box - Page 2 ...

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**Supplemental Box - Page 2 of 2**

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: **Box No. 5**

**INVENTIVE STEP :**

Claims 1-24, 31-34 and 36-37 do not meet the requirements of PCT Article 33(3), as they lack an inventive step over the cited prior art.

In addition to the claims discussed above, which lack novelty, claims 8-13 add an identification of one or more individuals as potential carriers based on a disease condition. This feature has been disclosed by D3, which stores patient information, such as medical history and disease symptoms, on a central electronic database, which is used, among other functions, for disease tracking and control, and identifying patients as potential carriers of disease.

Claim 22 specifies the use of a Balun antenna in the transceiver. Balun antennas are commonly used in transceivers, to improve the signal transmission. Claims 23-24 and 33-34 add a means of reconciling ID signals associated with people who randomly leave and return to the facility. Document D2 demonstrates continuous tracking of people throughout a facility, including a means to detect when a tag does or does not respond to a polling request, corresponding to the tag being absent from, or present in, the facility.

**INDUSTRIAL APPLICABILITY :**

Claims 1-25 and 31-37 fulfill the requirements of Industrial Applicability, as defined in PCT Article 33(4).

**GROUP 2 : Claims 26-30**

**NOVELTY :**

Claims 26-30 meet the requirements of PCT Article 33(2), as no single prior art document describes the contained subject matter.

**INVENTIVE STEP :**

Claims 26-30 do not meet the requirements of PCT Article 33(3), as they lack an inventive step over the cited prior art.

Independent claim 26 defines an identification apparatus (a tag) used for tracking persons in a facility. The device comprises a carrier member, passive and active antennas, and receiver and transmitter circuits. The passive and active antennas each comprise one or more windings on the same surface, and within the periphery, of the carrier member, and these antennas are electronically coupled, respectively, to the receiver and transmitter circuits. Claims 27-29 define the reception and transmission antennas of the apparatus as operating at separate distinct frequencies.

Prior art document D4 describes a system used for tracking items which have been stolen. The system includes a device which is attached to the item to be tracked. This device contains a receiver and a transmitter, for receiving polling requests from a remote base station, and responding by transmitting information relating to its location back to the base station, using a power source to generate and transmit the responding signal. The received and transmitted signals operate at different frequencies, which are configurable. Document D5 describes a card device containing separate transmission and receiving circuits, and separate antennas respectively coupled to these circuits, where the device is intended to communicate with a remote device. The antennas are both formed on the same surface of the card, both within the periphery of the card surface boundaries, as illustrated in figure 3. Therefore, documents D4 and D5 combine to describe the essential elements of claims 26-29. While claim 30 defines the windings for the active antenna as being thinner than the windings for the passive antenna, this feature is not a distinguishing element over the prior art.

**INDUSTRIAL APPLICABILITY :**

Claims 26-30 fulfill the requirements of Industrial Applicability, as defined in PCT Article 33(4).